Understanding Preproduction Delays in Fire Program Analysis (FPA) Initial Response Simulation (IRS) Module

Topic

Fire Program Analysis (FPA) approach to processing Initial Response Simulation (IRS) module Preproduction Delays.

Introduction

Preproduction Delays represent the sum of all delays from initial fire detection until fireline production can begin on the fire. The Initial Response Simulation (IRS) module uses this delay data to adequately model and simulate fire scenario information. Determining Arrival Time at a modeled fire event is partially determined by the capability of the fire resource and the physical characteristic of the Fire Management Group's (FMG) Fire Workload Area (FWA). The Preproduction Delays defined in this document clarify how the Arrival Time is calculated.
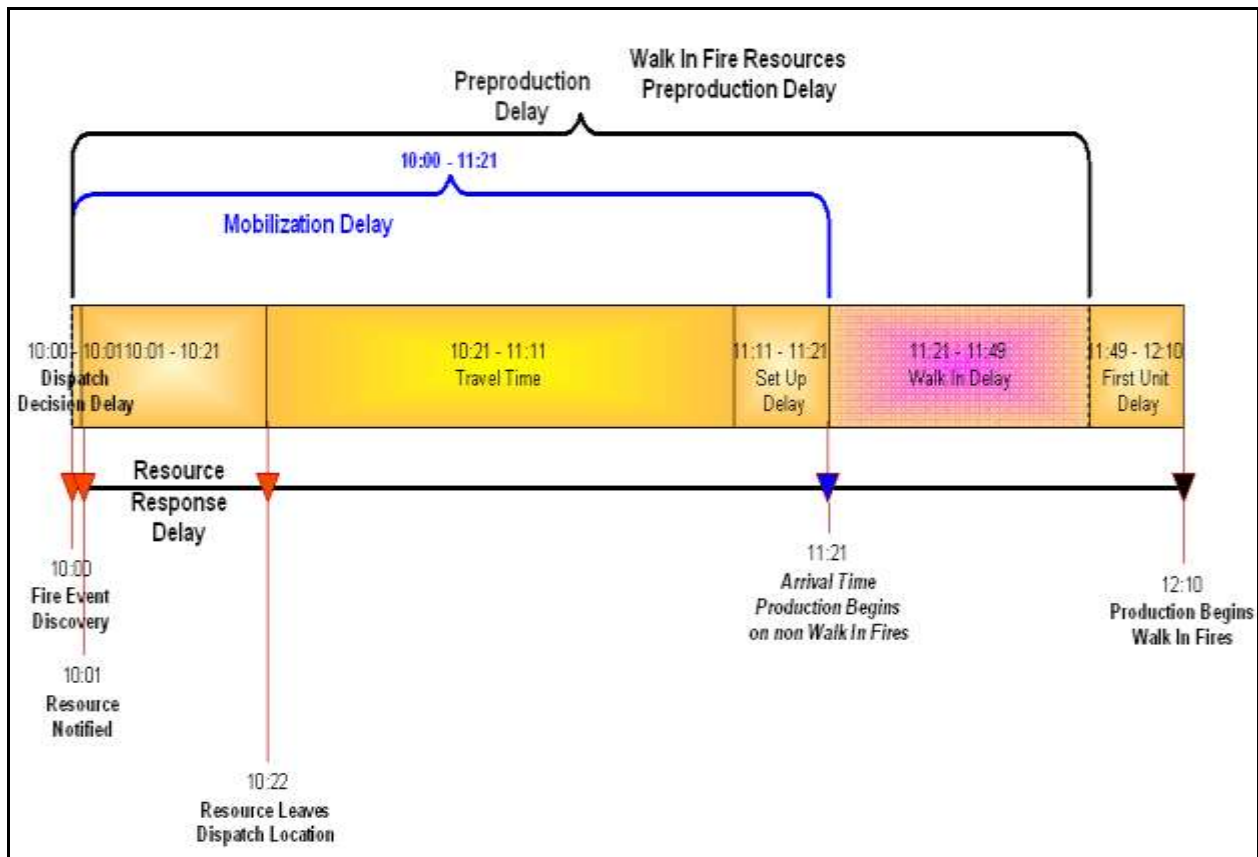

Figure 1: Walk-In Fire Resource Preproduction Delay

Discussion – Preproduction Delays

The following table defines the delay values used by the system.

Prod Type	Kind	Category	Describe	Avg Speed	Unit Type	Gal/Load	Dispatch Delay	Response Delay	Set-up Delay	Workshift Length
ATT	Aircraft	Air Tanker	Type 1&2	314	Air	2,600	1	10	0	Daylight
SEAT	Aircraft	Air Tanker	Type 3&4	174	Air	500	1	10	0	Daylight
SCP	Aircraft	Air Tanker	CL215/415	124	Air	800	1	10	0	Daylight
FBDZ	Equip	Airboat	Airboat	30	Ground		1	5	5	18 hours
FRBT	Equip	Boat	Fireboat	20	Ground		1	15	5	18 hours
CRW	Crew	Crew	Handcrew	35	Ground		1	5	10	18 hours
HELI	Crew	Crew	Handcrew/Helitack/Rappel	35	Air		1	10	4	18 hours
HEL1	Aircraft	Helicopter	Type1	132	Air	per elev.	1	10	15	Daylight
HEL2	Aircraft	Helicopter	Type 2	121	Air	per elev.	1	10	15	Daylight
HEL3	Aircraft	Helicopter	Type 3	140	Air	per elev.	1	10	15	Daylight
SMJR	Crew	Crew	Smokejumper	200	Air		1	10	4	18 hours
SJAC	Aircraft	Crew	Aircraft Smokejump	200	Air		1	10		Daylight
DZR1	Equip	Dozer	Type 1	30	Ground		1	20	25	18 hours
DZR2	Equip	Dozer	Type 2	30	Ground		1	20	25	18 hours
DZR3	Equip	Dozer	Type 3	30	Ground		1	20	25	18 hours
EN12	Equip	Engine	Type 1 & 2	40	Ground		1	5	5	18 hours
EN34	Equip	Engine	Type 3 & 4	35	Ground		1	5	5	18 hours
EN56	Equip	Engine	Type 5 & 6	35	Ground		1	5	5	18 hours
EN70	Equip	Engine	Type 7	35	Ground		1	5	5	18 hours
TP12	Equip	Tractor-plo	Type 1 & 2	30	Ground		1	20	25	18 hours
TP34	Equip	Tractor-plo	Type 3 & 4	30	Ground		1	20	25	18 hours
TP56	Equip	Tractor-plo	Type 5 & 6	30	Ground		1	20	25	18 hours
WT	Equip	Water Ten	All Types	30	Ground		1	15	5	18 hours

Note: None of the cells in the table above are editable by the FPU. Edits can only be done by the FPA system data administrator.

Table 1: NWCG Pre-Production Delays Used in FPA

The following table describes the delays listed above:

Delay	Description
Preproduction Delay	The accumulated time delays that apply to fire resources prior to the start of fire line production. This is the sum of all delays from first report of the fire until production can begin on the fire, and includes Resource Response Delay, Travel Time, Set-up Delay, and Walk in Delay. Figure 1 displays the Preproduction Delay timeline.
Resource Response Delay	The time from when an FPU notifies fire resources to prepare for fire duty until the fire resources leave the Dispatch Location. Only FPA Data Administrator can edit this value.

Delay	Description
Travel Time	The Travel Time between the dispatch location and the FWA workload point, excluding delays. The FPA system calculates this value as the distance between Dispatch Location (DL) and Fire Workload Area (FWA) Travel Time Point (TTP) based on particular fire resource Producer Type. Travel Time = either (Air Travel Distance or Ground Travel Distance)/ (average travel speed for the fire resource). Air Travel Distance = distance from DL to FWA TTP measured in a straight line. Ground Travel Distance = Air Travel Distance multiplied by the Air to Ground coefficient.
Set-up Delay	The time from the end of calculated travel time until fire resources are ready to produce or begin walk-in. Examples of Set-up Delay include: • Time to unload dozer from lowboy and size up fire; • Time to determine a landing spot, land, and unload a helicopter. Only FPA Data Administrator can edit this value.
Mobilization Delay	The FPA application treats the Resource Response Delay and Set-up Delay as a single value for each Fire Resource Producer Type (for example, an engine or dozer). Only FPA Data Administrator can edit this value**.**
Adjusted First Unit Delay	FPA allows only one resource to be the first to arrive at a fire event. Occasionally, more resources with the same modeled arrival time are dispatched to the same fire. In these cases, FPA sorts resources with the same arrival time by ASCII order and defines the first resource on the list as the first responder to the fire event. FPA applies the adjusted first unit delay to the other fire resources with the same arrival times. In these cases, the adjusted first unit delay is the same amount of time as the first unit delay.
First Unit Delay	The typical time for the first arriving fire resource to size up the fire, identify escape routes, and best travel route to the fire.
Walk-in Delay	The typical time, at the conclusion of Set-up Delay, for fire resources to travel cross-country to fires in walk-in FMGs or FWAs. A fire planning team should determine the Walk-in Delay

Delay	Description
	based on a general or typical fire location in the FMG or FWA.
	The Walk-in Delay applies to FWAs identified as having a percentage of the FWA workload as walk-in fire events. When there is no walk-in fire workload defined, production begins at the conclusion of the Set-up Delay.
	Each FMG should document its method or rationale for calculating the Walk-in Delay. Only FPA Data Administrator can edit this value.
Arrival Time	Total time from when a resource leaves the dispatch location until it arrives at the fire and fireline production begins. This includes a First Unit Delay if it is the first fire resource to arrive at the fire. See Mobilization Delay.

Table 2: Description of Pre-Production Delays Used in FPA

Resource Response Delay, and Set-up Delay are standard values determined by subject matter experts, and entered into the system (by the FPA Data Administrator) using lookup data by Fire Resource Producer Type.

See Also

- Understanding Smokejumper Deployment in FPA Initial Response Simulation (IRS)

- Understanding Helicopter Use in FPA Initial Response Simulation (IRS)